

Crowther, Philip (2007) Drawing Dialogues: Participatory Design Education. IDEA Journal 2007 2007:pp. 3-15.

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Drawing dialogues: participatory design education

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Abstract: *This paper offers an alternative view of drawing activities within an educational design studio environment. It analyses drawing tasks using the theoretical propositions of transformative learning, educational dialogues, and conversational frameworks. Such analysis highlights the possibilities for exploring true visual communication through drawing dialogues. It describes an action research project in which students and staff engaged in a range of drawing activities in order to generate deeper visual conversations with their associated systems of participation and feedback. The paper concludes by proposing that the theories of conversational and participatory education can be applied through the drawing activities of a design studio to generate and promote drawing dialogues.*

Keywords: *Design, Drawing, Communication*

Introduction

'If I can not draw it, I do not understand it'
Albert Einstein (in Martinez-Pena & Gil-Quilez, 2003, p. 181)

This paper describes an investigation into the use of drawing and sketching in an educational design studio context, and the analysis of such drawing activities using the theoretical propositions of educational dialogues, transformative learning, and conversational frameworks as explored by Mezirow (2000) and Laurillard (1993). These two writers have both promoted ideas of education through dialogue, participation, and transformation. Their investigations have focused on verbal modes of communication, but in the context of a design school, visual communication is equally important if not more so. The work of Mezirow and Laurillard can in fact be used to re-frame the activities of a design studio to better generate dialogical education through drawing dialogues. That is, conversations that take place visually rather than verbally, with illustrated and diagrammatic language; conversations that have similarly visual, illustrated and diagrammatic feedback.

This paper reports not on a new way of using drawing, nor on the elusive qualities of drawing as design process, but rather on a new way of understanding drawing. It illustrates this through an action research project that investigates ways to develop drawing dialogues between students and teachers. While design education relies heavily on participatory and dialogical educational settings, much of that dialogue is verbal. This project seeks to use the work of Mezirow and Laurillard to provide a different understanding of design drawing within a conversational framework.

Context

This action research project is set in a studio based unit (subject) for first year students of design. The second half of the semester is structured around a design

project, which the students work on from week 7 to week 12. This project is a semi-structured strategy of experiential learning (Delahaye, 2005, pp. 308-312), with some aspects of problem-based learning (pp. 324-326). The unit has 250 students in 14 tutorial groups who meet for 4 hours per week, immediately after a 1 hour lecture given by the unit coordinator. One of the discipline specific objectives of this unit is for students to be able to 'communicate to others through a range of visual representation techniques'.

Background theory

Learning through drawing

The significance of drawing within the studio context, and indeed in design education as a whole, is well recognised and uncontested (Gurel & Basa, 2004, p. 193; Schenk, 2005; Ulusoy, 1999). There is also strong agreement, amongst academics and researchers, about the relationship between drawing and designing. Cross (in Schenk, 2005, p. 201) describes the 'use of drawings as [part of the] designerly ways of knowing, thinking and doing'. Ulusoy (1999, p. 125) also notes the direct relationship between designing and drawing, but goes further to describe understanding design as being related to the linguistic faculties, and the act of designing as being related to visual thinking. He describes analysis as a verbal activity, and synthesis as a graphic activity. While Schon (1984, p. 4) also notes the differences between learning about design and learning to design, he relates these two activities, stating that '...talking and drawing make up a single language... I call this drawing and talking the language of designing'. This language of designing therefore results in a process of verbal and visual communication in the studio class; tutors and students discuss ideas and designs through verbal and visual dialogue.

Drawing as dialogue

If we understand drawing in the studio as a form of dialogue, then our understanding of the value of dialogue in the learning environment, will apply equally to drawing. The value of dialogue as opposed to persuasion is well explored by Mezirow in his work on transformative learning (2000 & 2006). Among other attributes, the communicative and participatory learning that Mezirow proposes is an environment in which a student will be 'free from coercion, distorting self deception or immobilizing anxiety... open to alternative view points... and have equal opportunity to participate in the various roles of discourse' (2006, p. 26). In an architecture studio much of the discourse occurs through drawing, so students need to have the skills to participate in that dialogue.

If 'good dialogue elicits those activities that shape, elaborate, and deepen understanding' (Biggs, 1999, p. 13) then a student's ability to communicate through drawing may affect their ability to participate in that dialogue, and therefore affect their deeper understanding; their deep learning (Marton & Säljö, 1976). Students must be 'able to interpret correctly a complex discourse of words, symbols, diagrams, and pictures' (Laurillard, 1993, p. 51) if they are to participate in this deeper learning.

Drawing for feedback

One way to assist in the development of a student's drawing abilities, and their ability to interpret drawings correctly and therefore their ability to participate in the educational dialogue, is through systems of ongoing feedback. Laurillard's (1993, p.

103) model of conversational frameworks maps out 12 activities of information transfer and feedback within the structure of a learning environment. Feedback, especially as rational and reflective discourse, helps to build the context of learning, and thereby influence and hopefully align the students' perception of the task requirements. Within the context of the design studio it is evident that while all of these connections are present there is a strong reliance on feedback at the level of 'actions' as evidenced in the usual tasks of the design project, but significantly less feedback offered at the level of 'conceptions'. Further to this, the nature of the learning context, the design project, makes it quite difficult to set tasks that offer a good level of intrinsic feedback - since the nature of the task is to develop something new and original, and in this particular case the students are in the first year of the course with very little prior learning to apply. Feedback is nearly always extrinsic, 'as an external comment' on the task (Laurillard, 1993, pp. 61-64) and as such, especially in the context of the design studio, commencing students often interpret it as subjective comment from the tutor, rather than objective analysis. This is an issue that must be constantly addressed and explained, not just in this unit but throughout the course. Establishing systems of feedback through drawing may offer better understanding of such objective analysis which can be seen rather than just heard.

Regular feedback on the student's developing drawing abilities will also help to align the tutorial activities and dialogues with the assessment project, which is also a drawn assignment (Biggs, 1999, p. 27). Increased use of drawing as communication in the tutorials should help to develop the student's perception of the task requirements, and align the student's perception with the tutor's perception (Ramsden, 2003, p. 82, Figure 5.1). The results of the lack of such regular feedback, and the lack of ongoing dialogue through drawing, have been seen in many design studios that rely heavily on the final assessment being in the form of a critique. The reliance on final presentation drawings presented at a critique does not encourage deep learning (Gurel & Basa, 2004, p. 193), and indeed the focus on presentation drawings can dilute the process of design education; putting the focus on the product of learning not the process of learning.

Problems and issues

In order to avoid the usual problems associated with the critique process, the major design project for this unit was submitted for an exhibition of all student work in Week 12 of the semester. Students did not present their projects verbally to the assessors in the usual mode of a critique; rather the design projects were assessed on their own after the exhibition, based solely on the drawings as presented. The exhibition provided a much better opportunity for students to see other students' work without being anxious about the impending critique. In the following week the work was exhibited again, and the tutors spent half of the class time reviewing the project. Tutors used a series of notes prepared by the unit coordinator to address each of the assignment objectives and discuss the standards, as outlined on the criterion reference assessment sheets previously provided to students and staff. In the second half of the class the students were directed, through a series of handout notes and questions, to reflect on their own work and explore alternatives, by analysing the work of another student and recording their observation in their Visual Journal for assessment at the end of the semester. The Visual Journal was a record of all of the student's design activities and processes during the whole semester.

The success of the Visual Journal as a record of design thinking and learning is part of the longer term action research project, over several semesters at least. The more immediate issue was one of students communicating visually through their drawings without verbal descriptions to back them up. In essence, since the major design project was to be assessed on visual communication alone, student would need well developed capabilities in visual communication as they could not rely on verbal communication.

This action research project then sought to explore the issue of how to improve both the quality and quantity of drawings, and how to frame such drawings as visual communication; drawings that do communicate to a tutor what the student thinks they communicate. It further sought to explore the idea of reflective dialogue through drawing - using a dialogue of drawings to achieve deeper understanding.

Action research project

A number of ideas for improving and developing student engagement with visual communication were developed into two types of actions that would be implemented during the weekly studio classes; these were either changes in the way that tutors would offer feedback to students on their work, or activities for students to perform during the class where they could obtain immediate feedback from tutors. In the first class following the handout of the project (Week 7), the tutors were briefed on a new and alternative way to handle their interactions with the students. In summary, they were asked to alter the structure of their normal pattern of dialogue with the students to focus more centrally on the drawings rather than the spoken word (see Figure 1). After reviewing the progress of this strategy a number of in-class drawing exercises were then developed and introduced to further shift focus from verbal communication to visual communication, and to further build processes of visual feedback.

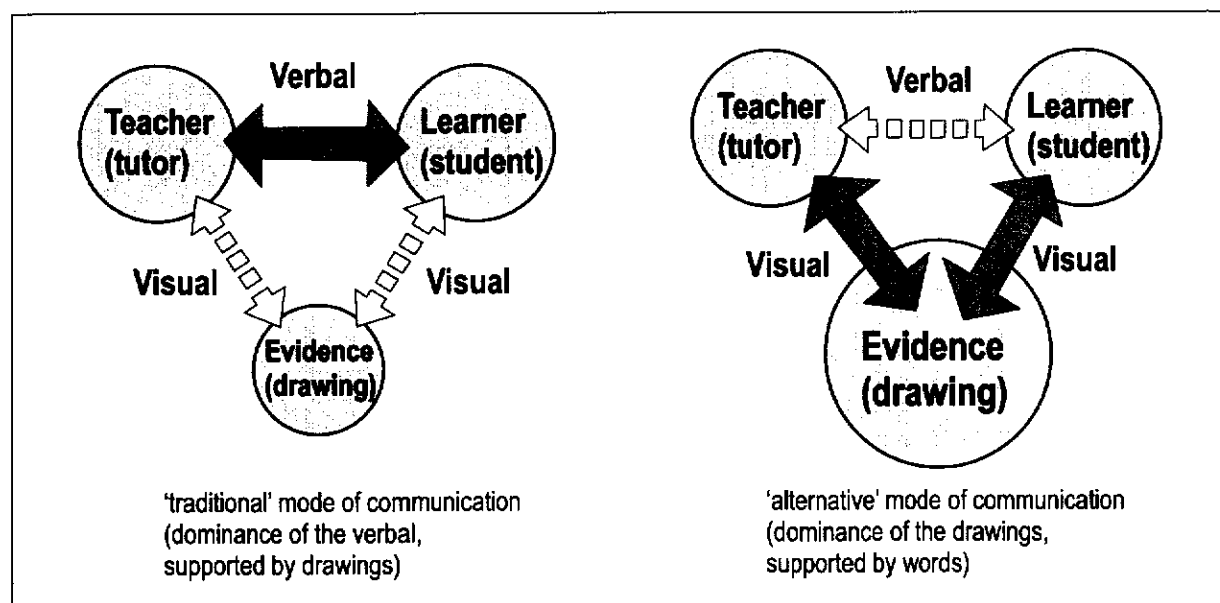


Figure 1: Verbal dialogue versus drawing dialogue.

Feedback on the action research project was primarily from tutors in the form of weekly debriefings, and written feedback on specific questions about the research activities. Some further comments were obtained directly from students during the project, though generally the feedback from students was managed through the tutors.

The notion of the 'moments' of action research (Carr & Kemmis, 1986, p. 186) has been used to structure the activities of this project as 'Planning, Acting, Observing, Reflecting' (see the following section).

Week 7:

Constructive

Plan - Since the action research project will seek to be participatory, all students and tutors should understand what is being attempted.

Act - Students and tutors are told about the planned structure of classes and the relationship that they must adopt with each other and the drawings. They are briefed on the ways in which drawings will become the focus of conversations and how we will encourage dialogue through drawing.

Reconstructive

Observe - N/A

Reflect - N/A

Week 8:

Constructive

Plan - Conversation would normally start with the student describing their ideas verbally, while using drawings as supporting illustrations. Discussions will now start with the tutor describing to the student what he/she reads/sees in the drawings. Only after those tutor comments, will verbal dialogue within the group commence.

Act - Some time is set aside before the class to brief the tutors on the alternative structure to the individual and group conversations that they will be having in class. Students show their drawings and the tutors read them to the group. Verbal dialogue follows.

Reconstructive

Observe - Tutors generally thought that this mode of conversation did shift focus to the drawings, and did get students to more fully understand what the drawings are actually communicating - as opposed to what the students thought they were communicating. There was however a feeling from most tutors that there was not enough drawing to respond to, and as such the dialogue was limited. Since this strategy had not resulted in sufficient drawings being prepared, the tutors often resorted to discussing the student's ideas that were not drawn.

Reflect - A further strategy was needed to encourage students to produce more drawing - so that a deeper dialogue could be had. It also became obvious that the tutors themselves were not speaking through drawings, so strategies to address these issues would be developed.

Week 9:

Constructive

Plan - In an attempt to address the lack of drawings for the tutors to read, an in-class drawing exercise was prepared for this week's class. Students would work on this drawing exercise while not directly engaged in dialogue with the tutor.

Act - This exercise '*Diagramming Architectural Ideas*' asked students to prepare diagrams of their ideas. That is, to literally draw their ideas - not to draw a building proposal, just isolated ideas. Students were briefed on this exercise in the lecture and tutors gave demonstrations of this form of drawing in the tutorial classes; the tutors themselves would encourage drawing dialogues by doing drawing.

Reconstructive

Observe - Tutors almost unanimously agreed that this exercise was successful at getting students to make drawings that could be read and discussed by the group. They also agreed that the student's understanding of the act of designing was enhanced by engaging in the act of drawing during the class where tutors could give immediate feedback, both verbal and drawn. Tutor all noted that the visual dialogues were more participatory after the drawing exercise.

Reflect - Tutors doing drawing in class completed the feedback loop (Laurillard 1993, p. 103). Since the in-class exercise did indeed result in more drawing being prepared, which resulted in more and improved dialogue, further exercises would be developed, and tutors would be prompted to draw more themselves in class.

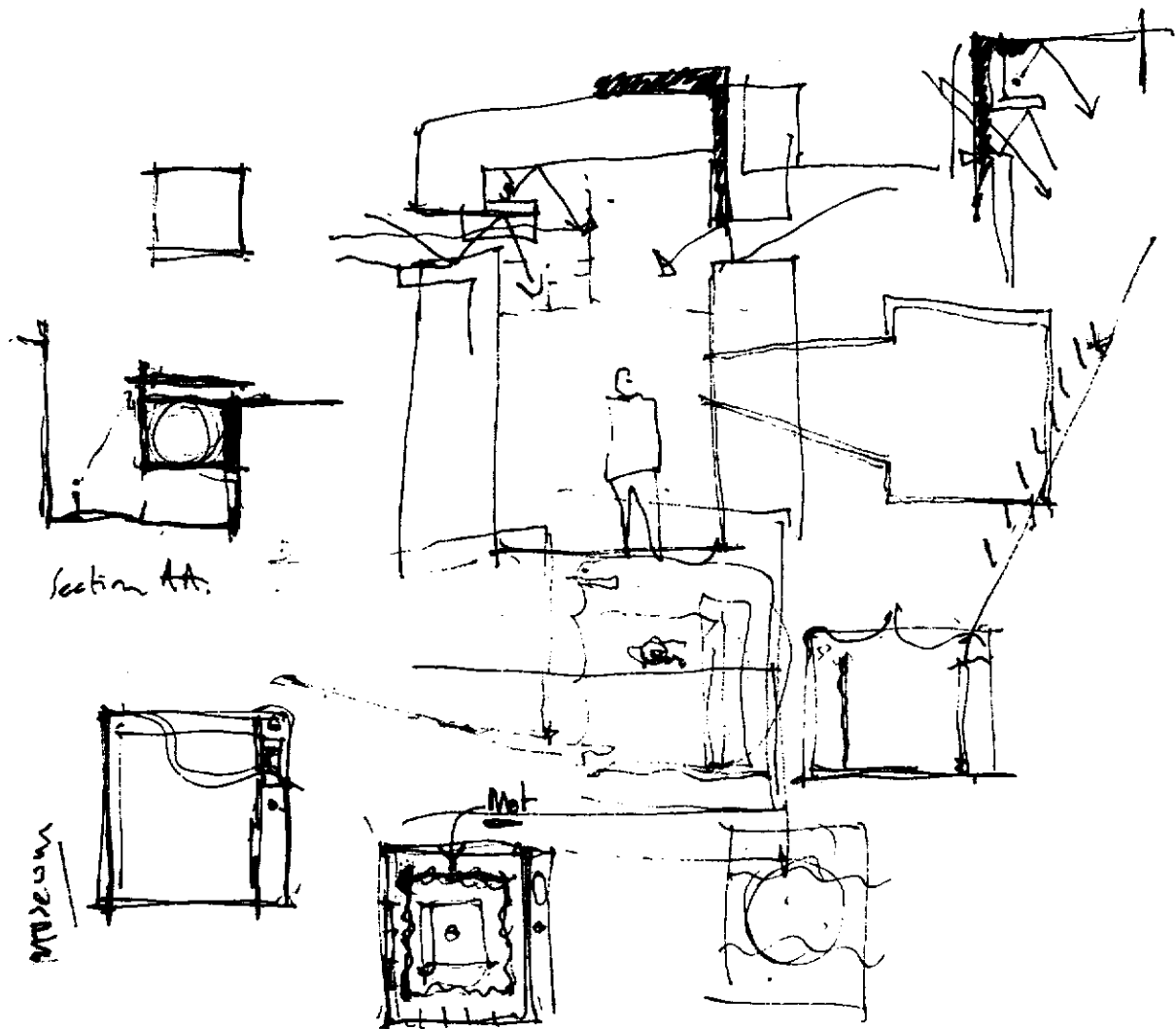


Figure 2: Record of a drawing dialogue between student and tutor.

Week 10:

Constructive

Plan - With the success of the preceding week's in-class exercise, another was developed and presented to the students, rather than reverting to relying on drawings done at home between classes.

Act - In this exercise '*The Detailed Section*' students were asked to prepare, during the class, a 1:50 scale section. Samples of this type of drawing were presented in the lecture, and also provided in the class room. This exercise would stimulate a conversation about drawing conventions - in some ways an analogy of the basic grammar of drawing.

Reconstructive

Observe - Most tutors found this to be helpful with some noting that this particular type of drawing showed the aspects of the design that they wished to discuss. That is to say that this type of drawing spoke to them with the type of information that they wanted to hear. Some tutors noted that some students were struggling to engage with this type of drawing as they lacked the skills or confidence to even attempt it - their grammar was not yet developed enough to fully participate in the dialogue.

Reflect - Since this particular exercise focused on one specific/technical type of drawing, which some students struggled with, it did not promote drawing dialogue for all students; some alternative types of drawing were also needed.

Week 11:

Constructive

Plan - In an attempt to engage with those students who struggled with the preceding exercise, a very different type of drawing was planned for this week's in-class exercise - understanding that students learn in different ways, they will certainly also favour different modes of communication, and different types of visual communication.

Act - In this exercise '*One Point Perspective Sketching*' students were asked to prepare a freehand perspective sketch of the inside of their building - this not only asked for a different type of *drawing*, more casual and lacking in technical conventions, but also requires a different type of understanding of architectural design. Samples were provided and techniques demonstrated and discussed by tutors in class.

Reconstructive

Observe - Most tutors noted that due to the impending submission date, most students really just wanted verbal formative feedback on what they had already drawn at home, though most tutors thought there was some value in the exercise. One tutor noted that this exercise was helpful for students to understand 'being in' the space.

Reflect - The notion of 'being in' the space is a key concept of interior architectural design - the ability to imagine yourself in the space you are designing - so this comment suggests great value in this exercise in terms of improving student's understanding, but perhaps it would have been more valuable earlier in the program.

Week 12:

Constructive

Plan - It had always been the plan in this unit that students would submit their final design projects for an exhibition before they were assessed - there would not be an oral presentation in the form of a critique.

Act - At the exhibition, students were directed to make observations of other students' work - to analyse it and record their observation in their visual journal.

Reconstructive

Observe - Nearly all students took advantage of the opportunity to look at other students' work. Most formed casual groups who together analysed the work of others and openly discussed it while recording ideas in both written and drawn forms.

Reflect - The self-generated dialogue, without any particular prompt from teaching staff, was very valuable and slightly unexpected. This almost completely unstructured time appears to have been very useful for the students.

Results

One of the most successful activities, in terms of increasing the levels of drawing dialogue and student participation, was to have students and tutors drawing during the class itself, rather than relying on between-class drawing activities. The in-class drawing tasks allowed more immediate feedback for students to respond to. When such feedback was also provided through drawing by the tutor, students were better able to see and understand the re-described conceptions that the tutor was providing (Laurillard, 1993, p. 103). Students were then better positioned to modify their actions in light of that feedback. Actions, conceptions, and feedback, are thereby all offered visually in the form of a drawing dialogue.

Some activities highlighted the inability of some students to fully participate in the drawing conversation. Students who had not yet developed a thorough understanding of orthogonal drawing conventions were unable to take part in the type of participatory education that Mezirow proposes; they lacked the opportunity to 'participate in the various roles of discourse' (Mezirow, 2006, p. 26). For such students it was necessary to provide an alternative grammar through a different form of drawing; freehand sketching as opposed to orthogonal drafting.

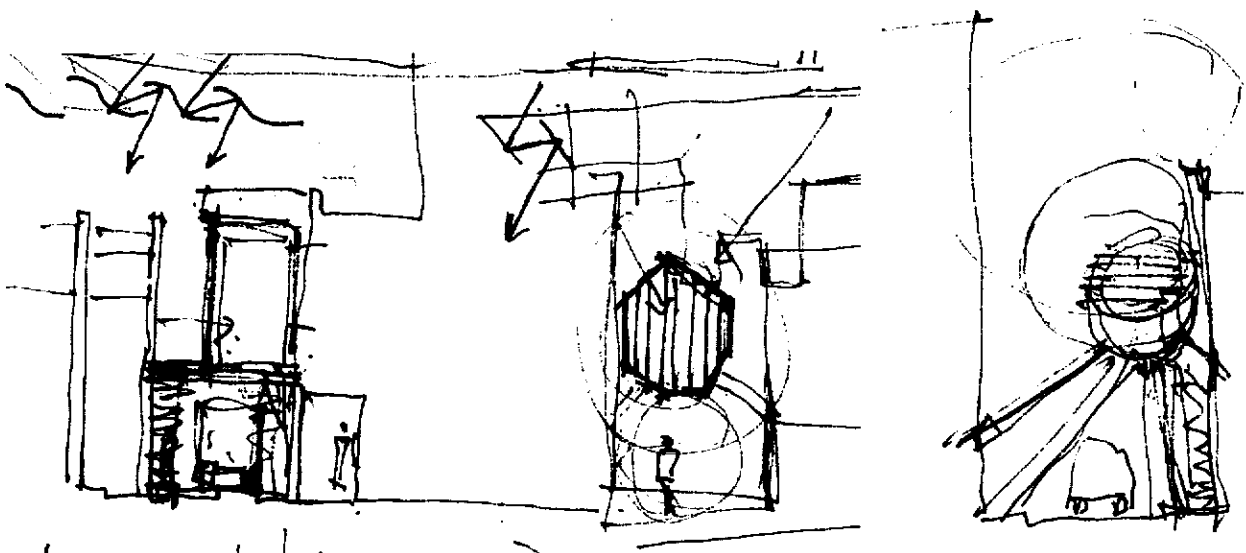


Figure 3: Record of a drawing dialogue between student and tutor.

Conclusion

In general the strategies for change that were implemented in this unit seem to have allowed the students to develop a better set of capabilities for visual communication. The feedback from the tutors, and my own observations in the class, indicate that making the drawings the central focus of conversations - creating drawing dialogues rather than just verbal dialogues - has assisted students in their assignment tasks, but more importantly has assisted them in their understanding of design. On this small scale, the changed mode of visual conversation, and the in-class drawing exercises to help to facilitate such conversation, has resulted in students using drawings more than in previous years for communication purposes.

The problems of communication within the studio and the crit are well documented (Mitgang, 1999; Vowles, 2000; Webster, 2006 & 2007) but this action research project does suggest in some small way that:

- Alternatives can be developed that will favour dialogue over persuasion, and such alternatives can be visual as well as verbal (Groat & Ahrentzen, 1996).
- Some of the feedback in Laurillard's conversational frameworks model (1993, p. 103) can, in a design context, be developed through drawing, to provide re-described conceptions that prompt an appropriate modification of action by the student (Lee, 2006).
- Better alignment of in-class tutorial activities and assessment tasks (Biggs, 1999, pp. 11-33), specifically through in-class drawing dialogues, can assist to develop deeper understanding (Marton & Säljö, 1976).
- The development of drawing dialogues can shift the focus from product to process; from the design project outcomes to the design development process (Nicol & Pilling, 2000). This is especially evident when the records of such dialogues or conversations (see Figure 2) are presented as a component of the assessment of student projects, as was the case in this project with the Visual Journals.

If improved levels of communication can lead to deeper understanding of design, then this research project suggests that such communication can be established as drawing dialogues that do indeed facilitate improved learning outcomes. The exact relationship between drawing ability and designing ability is still not well understood in design education (Swanson, Sadaby & Yin, 2006). What has been explored here however, is that drawing can be a form of dialogue, and that such dialogue can be used to explore a deeper understanding of design.

If 'transformative learning involves learning to think critically by questioning assumptions and expectations that shape and influence what we think and do' (Mezirow, 2006, p. 24), then a new educational context that embraces transformative learning will require teaching staff to also critically question the assumptions under which they have been operating. The dialogically based learning environments that Mezirow proposes are ones in which learners and teachers develop an understanding through conversation.

This paper has stopped short of proposing new practices in the design studio, but rather has sought to re-frame an understanding of current studio practice. It has reviewed theories of educational conversation and participation, and applied them through an action research project, to a design studio. We see that Mezirow's view of transformative learning, and Laurillard's (1993) view of the conversational frameworks required to complete the learning process, can be applied to the activities of drawing within such a design studio context. Placing the tasks of design drawing within the context of such a conversational framework, with the associated systems of participation, transformation, and feedback, allows a different understanding of such studio activities as drawing dialogues.

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